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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,005	03/30/2004	Eric Stremler	T-6309	6057

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EXAMINER	
PATEL, SHAMBHAVI K	

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/814,005	STREMLER ET AL.	
	Examiner	Art Unit	
	Shambhavi Patel	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/15/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-30 are pending.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 12/15/05 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner has considered the IDS as to the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claims 1-30 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement**. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Based on the specification, it is not clear how a skilled artisan would derive the simulated qualification tests and implement the strategy simulator engine.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. **Claims 1-30 are rejected under 35 U.S.C. 101** because the claimed invention is directed to non-statutory subject matter. The Examiner asserts that the current state of the claim language is such that a reasonable interpretation of the claims would not result in any useful, concrete or tangible product. The last steps of claims 1 and 16 are directed to determining a probability of passing indicator, and a cost and time duration of the proposed test sequence—the Examiner asserts that this does not produce a tangible result.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claim(s) 1, 2, 4, 8, 11-18, 19, 23, and 26-30 are rejected under 35 U.S.C. 103(a)** as being unpatentable over **Chen ('A Chemical Kinetics Model to Predict Lubricant Performance in a Diesel Engine. Part I: Simulation Methodology') in view of Greenhouse Gas Technology Center ('Test and Quality Assurance Plan ConocoPhillips Fuel-Efficient High-Performance SAE 75W90 Rear Axle Gear Lubricant'), herein referred to as 'Greenhouse'.**

Regarding claims 1, 2, 16, and 17:

Chen is directed to a method of simulating and optimizing qualification testing of lubricating oil products, the method comprising passing a plurality of lubricating oil product characteristics to a simulator engine **(abstract)**, wherein the simulator engine comprises a plurality of simulated qualification tests and processing the lubricating oil product characteristics in one or more of the simulated qualification tests **(abstract; 'Introduction' paragraphs 4-5)**, wherein the output of each simulated qualification test includes a probability of passing indicator for indicating the probability that a lubricating oil product have the inputted characteristics would pass an actual qualification test **(abstract; 'Introduction' paragraphs 4-5; 'Conclusion')**

Chen does not explicitly disclose using a strategy simulator engine to optimize the qualification tests according to cost and time. Greenhouse teaches doing testing on actual lubrication oils by taking in parameters **(Greenhouse: page 1-3)**, choosing a cost effective test **(Greenhouse: page 1-5)**, and tracks the time and cost required to complete the test **(Greenhouse: pages 1-5 and 4-2)**. At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teachings of Chen and Greenhouse because in order to accurately simulate the lubrication oil model, real life parameters and

data must be acquired.

Regarding claims 8 and 23:

Chen and Greenhouse are directed to the method of claim 1, wherein the lubricating oil product characteristics comprise base oil percentage and characteristics, viscosity index improver percentage and characteristics, additives percentage and characteristics, and pour point depressants percentage and characteristics **(Chen: 'Calculation Procedure')**.

Regarding claims 4 and 19:

Chen does not explicitly disclose tracking test time and cost. Greenhouse teaches doing testing on actual lubrication oils by taking in parameters **(Greenhouse: page 1-3)**, choosing a cost effective test **(Greenhouse: page 1-5)**, and tracks the time and cost required to complete the test **(Greenhouse: pages 1-5 and 4-2)**. At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teachings of Chen and Greenhouse because in order to accurately simulate the lubrication oil model, real life parameters and data must be acquired

Regarding claims 11, 12, 26, and 27:

It would be obvious to a skilled artisan to include the functionalities of these claims because in order to follow the industry standards, the simulator should accommodate the 'Codes of Practice'.

Regarding claims 13 and 28:

Chen discloses running the simulation using two different experimental lubricants and three different reference oils **(abstract)**.

Regarding claims 14-15 and 29-30:

It would be obvious to a skilled artisan to enter the Codes of Practice into the simulator so that the model and tests may conform to industry standards. It is further obvious that these standards have to be translated into a machine-recognizable language (otherwise they could not be factored into the simulation).

4. **Claim(s) 5-7 and 20-22 are rejected under 35 U.S.C. 103(a)** as being unpatentable over **Chen ('A Chemical Kinetics Model to Predict Lubricant Performance in a Diesel Engine. Part I: Simulation Methodology') in view of Greenhouse Gas Technology Center ('Test and Quality Assurance Plan ConocoPhillips Fuel-Efficient High-Performance SAE 75W90 Rear Axle Gear Lubricant'), herein referred to as 'Greenhouse', in further view of Lampinen ('Bayesian Approach for Neural Networks – Review and Case Studies').**

Regarding claims 5-7 and 20-22:

Chen and Greenhouse do not explicitly disclose using modeling techniques selected from neural networks, Bayesian network, and mixtures thereof. Lampinen teaches applying neural networks, Bayesian networks, and a random factor to modeling. At the time of the invention, it would have been obvious to combine the teachings of Chen, Greenhouse, and Lampinen because these applications eliminates the need to guess attributes that are unknown in the model **(Lampinen: abstract)**

5. **Claim(s) 3, 5, 18, and 20 are rejected under 35 U.S.C. 103(a)** as being unpatentable over **Chen ('A Chemical Kinetics Model to Predict Lubricant Performance in a Diesel Engine. Part I: Simulation Methodology') in view of Greenhouse Gas Technology Center ('Test and Quality Assurance Plan ConocoPhillips Fuel-Efficient High-Performance SAE 75W90 Rear Axle Gear**

Lubricant'), herein referred to as 'Greenhouse', in further view of Busetti ('Genetic Algorithms Overview').

Regarding claims 3, 5, 18, and 20:

Chen and Greenhouse do not explicitly disclose the use of genetic algorithms, simulated annealing, or a random factor when trying to optimize the qualification tests. Busetti teaches using genetic algorithms (which encompasses simulated annealing and a random factor) to solve optimization problems **(Busetti: 'Introduction and Background'; 'Overview'; 'Comparison with other Methods').** At the time of the invention, it would have been obvious to combine the teachings of Chen, Greenhouse, and Busetti because genetic algorithms, simulated annealing, and random factors are robust techniques that have been shown to outperform conventional optimization techniques on difficult, discontinuous functions **(Busetti: 'Suitability').**

6. **Claim(s) 9-10, and 24-25 are rejected under 35 U.S.C. 103(a)** as being unpatentable over **Chen ('A Chemical Kinetics Model to Predict Lubricant Performance in a Diesel Engine. Part I: Simulation Methodology') in view of Greenhouse Gas Technology Center ('Test and Quality Assurance Plan ConocoPhillips Fuel-Efficient High-Performance SAE 75W90 Rear Axle Gear Lubricant'), herein referred to as 'Greenhouse', in further view of Faller ('Multicanonical Parallel Tempering')**

Regarding claims 9-10 and 24-25:

Chen and Greenhouse do not explicitly disclose the use of parallel Monte Carlo simulation. Faller teaches the use of the parallel Monte Carlo method when doing fluid simulation **(Faller: abstract).** At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine teachings

of Chen, Greenhouse, and Faller because the use of advanced Monte Carlo techniques can considerably facilitate the study of complex systems by improving sampling **(Faller: abstract).**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shambhavi Patel whose telephone number is (571) 272-5877. The examiner can normally be reached on Monday-Friday, 8:00 am – 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

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